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STATE FORESTS IN MICHIGAN

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Michigan is a part of the Great Lakes region, which extends from the State of New York, west and northwest, far beyond the confines of the United States. This region is a broad expanse of level country without high mountains, but dotted by lakes and swamps and traversed in all directions by numerous streams.

Michigan is made up of two peninsulas, the "upper and lower," formed by Lakes Superior, Michigan, Huron and Erie, and shares the general character and topography of the Great Lakes region. Lakes Michigan and Huron are about five hundred and seventy-five feet above the sea, Lake Superior about six hundred feet, and the lands slope from these lakes to an elevation of four hundred to six hundred feet above the lakes themselves. In the upper peninsula the "Porcupine" and "Huron" mountains, and other groups and chains of picturesque hills, skirt the "Father of Lakes," and rise, in a few points, to a maximum altitude of nearly two thousand feet above sea level.

The climate of Michigan varies from a mild temperate one in which peaches and the grapevine thrive to a cold frosty one, where the snowy winters are long and frost appears in nearly every month of the year. Generally Michigan lies between the yearly isotherm of 40° and that of 50° F.; the summer is warm, but rarely hot, and the winters generally cold. From the standpoint of tree growth, Michigan lies in a climatic transition zone, in which such trees as the tulip poplar, chestnut, sycamore, sassafras, walnut, hickory and others find their northern limits, while the northern pines, spruce, cedar, and tamarack have their southern limit within the state.

An average rainfall of about thirty to thirty-five inches, quite well distributed throughout the year, enables the forest trees to occupy all parts of the state.

Nearly all of the land area of Michigan is overlain with a mass of glacial drift, so that the soil is generally very deep, and variable

in composition and character. Over large areas this soil is a deep, coarse sand, unfit for agriculture and covered everywhere with the typical "pinery" vegetation.

In keeping with the surface geology, the generally level character of the country and the irregular deposits of drift, the drainage is imperfect, and in nearly all parts of the state there occur large and small lakes and swamps, the latter generally old ponds or lakes filled, or in process of filling.

Michigan was a forest, and the white pine its greatest tree. Not Maine, but Michigan should have been called the "White Pine State." There were practically no real prairies in Michigan. The few openings, such as "Prairie Ronde," were mere holes burned into the great forest and maintained by fire. A much larger area of open lands existed in form of grass marshes and open bogs.

The forest, in its original form, may well be divided into a southern "hardwoods" forest, without pine, and a northern forest, in which the pine formed a conspicuous part of the composition. This latter again divides itself, naturally, into the northern hardwoods, largely of maple and beech, with hemlock and some pine, and stocked on the loam and clay lands, and into the "pinery" proper, or pure forest of pine, limited to the poorer sandy lands.

Throughout these three great divisions, or types, of forest, there existed the swamp woods, occupying the poorly drained depressions, and varying from a few acres to several square miles in extent.

The southern hardwood forest of Michigan was part of the great hardwoods region of the Ohio Valley; it occupied approximately what is now the three southern tiers of counties, was practically without pine and spruce, but varied in its composition considerably according to soil and drainage. The well-drained, rolling lands were covered with oakwoods, made up of oak (red, white, black and scarlet oak), with variable mixture of hickory, walnut, butternut, elm, beech, ash, basswood, maple, cherry, blue beech, hornbeam and others.

In places, especially on gravelly slopes, old stands of these oakwoods assumed the appearance of parkwoods and became well-known as "oak openings."

The valleys and flats, notably the old "lakebeds" were largely maple and beech woods with a heavy mixture of elm and ash, and

but little of oak, hickory or the walnut. Over large areas these flats were poorly drained and swamp-like, and were often known locally as "elm and ash swamps," these two kinds of trees usually predominating on such ground.

The northern hardwoods were maple and beech woods with more or less of conifers, hemlock, white pine and balsam; and in some localities, notably the upper peninsula, with some spruce and white cedar or arbor vitæ. These northern hardwoods varied considerably with soil and drainage, in some tracts the elm and basswood appeared as predominant timber, but generally they were practically without oak, hickory or walnut.

The "pinery" proper, *i. e.*, the forests of pine on the sandy lands were practically without any hardwoods of merchantable size. Generally there appeared a sprinkling of poplar (aspens), white birch, scrubby maple and oak. On the flats and moister situations and on the better sands this pine forest was largely of white pine with some Norway or red pine; on poorer sands it was largely or all Norway pine and on the poorest sands it was stocked with jack pine. Older stands of these pines, especially the Norway pine, were almost without undergrowth or brush, so that in some of these a team could be driven for miles without a road. Of the jack pine lands, large tracts were kept clear by fire and thus became the "jack pine plains," evidently an effort on the part of the Indian to provide an open, prairie-like summer-camp, free from mosquitoes and flies and supplying, incidentally, a large amount of delicious fruit in the crops of the huckleberry.

The swamp woods were composed chiefly of tamarack and cedar in variable proportions. Usually they contained a sprinkling of spruce which predominated on the bogs, and along the edges a mixture of pine, balsam, aspen, ash and maple. This swamp timber was always small compared to the big pine and hardwoods of the dry lands.

These were the great forests of Michigan of a century ago, and beautiful forests they were. Large oak, often 300 years old and more, furnished shelter and food for game. Hickory, walnut, and thicket of hazel supplied the natives with nuts; plum, cherry, wild grape, raspberry, blackberry and huckleberry furnished fruit in abundance. Deer, bear, wolf, fox, beaver, wildcat, muskrat, squirrel and rabbit were all abundant and relatively easy to secure.

Everywhere the waters teemed with fish and from spring until fall they were alive with water fowl of many kinds, while in the woods the wild turkey and grouse remained throughout the year, and the passenger pigeon came in flocks so large and so tame that they could be secured by the thousand. This was the beautiful home of the Chippewa, who depended on the forest and water for shelter and food, broke trails through the woods and used the streams and lakes as his highways. He used the forest, but did not destroy it, and when the white man came he found an unbroken forest and not a region of burned-over waste lands.

To-day the southern part of the state is cleared and settled and the forest is limited to the woodlot of the farm. In the northern half the conditions are different. Axe and fire have destroyed practically every acre of the pine forest proper, and these sandy pinery lands to-day are cut- and burned-over wastelands. The hardwoods have suffered, but have suffered less, so that they still support a considerable lumber industry. On the whole it is rather surprising to find such large areas of woods and wild lands in so old a state and so near some of the centers of population. Of the north half of Michigan only about fifteen per cent is settled and over ninety per cent is unimproved wild land. A day's ride on the train brings the resident of Chicago into the heart of the upper peninsula, an area of over ten million acres, in which fully ninety-five per cent of all lands are woods and wilderness. The tourist finds here all that he can wish for. A variety of conditions, bold, rocky, wood-clad hills, fine hardwood forest on gentle slopes, and broad stretches of interesting tamarack and cedar swamps, and everywhere lakes and ponds as pleasant surprises, and streams of cold, clear water rushing to the great inland seas. Little wonder, therefore, that the state forests in Michigan did not originate, as did the Adirondack Park of New York, in the desire of the people for a place of rest and recreation. In Michigan the state forest came out of an attempt to solve a political land problem and at the same time satisfy a public clamor for a beginning in forestry.

When the lumberman of Michigan had cut the pine from a section of land and the fire, which invariably followed every operation of this kind, had destroyed what the axe had left, the owner no longer cared to pay the usually exorbitant taxes, and simply left the land to revert for non-payment of taxes. After a few

years these lands became tax lands and were regarded as property of the state. During this transition and often for ten and twenty years after, the state spent its good money in advertising these lands and bookkeeping and thus the lands became a serious burden, which some years amounted to over one hundred and fifty thousand dollars. Even after the state succeeded in getting rid of the lands, they were rarely settled, but generally bought merely to skin off some remnants of timber which had escaped the fires. In an effort to end this useless and wasteful business and also to make a beginning in forestry, the friends of forestry urged the holding of these lands as state forest. In 1903 about thirty-five thousand acres in Roscommon and Crawford counties were set aside and placed in the care of the State Forest Commission. Practically all of these lands had come into the possession of the state for taxes. They were poor, sandy, pinery lands, with a considerable proportion of swamp. Aside from the swamp-woods there is no real forest, and considerable areas were jack pine and scrub oak plains, which were without merchantable timber when the forest of the district was exploited. The work done upon these lands consisted in protecting them against fire and trespass, in their survey and classification, and in an estimate and description of the woods. In addition, a nursery was established and several large plantations set out. The plant material or trees raised in the nursery and set out on the waste lands are largely pine and spruce. In keeping with the public character of the enterprise, a number of experiments have been undertaken to find the most effective and satisfactory ways of restocking lands of this kind. In addition, large quantities of the plant material were sent out to landowners all over the state, with a view of encouraging the setting out of trees and woods.

So far the only use that has been made of these state forest lands for recreation consists in fishing and hunting. There is still considerable game, some deer and bear, few grouse, and some ducks and geese during migration. Hunting is permitted without restriction beyond that of the general game laws of the state. While thus the state forests of Michigan hardly belong to the enterprises here considered, this is only partly true and will probably not be true in the near future. For some months past the new "Public Domain Commission," which has entire charge of all state lands and forests, has been setting aside additional tracts, so that now there are over

one hundred thousand acres of state forest. It has also under consideration a plan to make some of these forests game refuges. Should such a plan succeed, it would add much to attract the visitors who, in their vacations, love to combine rest and the enjoyment of nature.